Fire Department • Fire and Environmental Protection Division • 1000 Villa Street • Mountain View, CA 94041-1295
650-903-6378 • FAX 650-903-6122

Plan Check Requirements for:
TOXIC GAS ORDINANCE
EXTERIOR STORAGE
(Update-- 5/99)

The Fire and Environmental Protection Division of the Mountain View Fire Department (650-903-6378) will review your submitted plans using this plan check guideline.

Where appropriate, enter below the page number of your submitted plans where the item asked for is described and highlight the item in your plans, Include brochures, manufacturer's cut sheets, and calculations with the plans when asked for.

If all the required information asked for is included in your plans or attachments, they can be reviewed and approved by the Fire and Environmental Protection Division as quickly as five working days.

****

Facility Name: _____ **Address:** _____

Architect Name: _____ **Phone:** _____ **PC#:**_____ **Date:**_____

GENERAL

θ *Show the exterior storage area(s)*[1] *on the plans.* Plan page number: _____ .

θ *TOXIC GAS INVENTORY LIST. List all regulated toxic gases, regardless of sizelquantity, in the exterior areas shown on your plans.*
Exterior Area name designation/description: _____

Toxic Gas	Number of Cylinders	X	Qty of Toxin Per Cyl. (lbs.)	=	Total Quantity of Toxin (lbs./Cu.Ft.)	CLASS	Cylinder/Port.Tank/ Stationary Tank	IDLH	PEL
_____	_____	X	_____	=	_____	_____	_____	_____	_____
_____	_____	X	_____	=	_____	_____	_____	_____	_____
_____	_____	X	_____	=	_____	_____	_____	_____	_____

[1] Exterior Storage is defined as an area enclosed by no more than two contiguous walls. Enclosures having more than two contiguous walls are considered "interior storage" and the plan check guideline for "Interior Use/Storage and Exterior Use" should be used instead.

_____ _____ X _____ = _____ _____ _____ _____ _____

_____ _____ X _____ = _____ _____ _____ _____ _____

θ Security measures to limit access to each control area are required. (MVCC 24.230). *Describe the security measures for the control area.* Plan page number: _____

θ A minimum of 2 Self Contained Breathing Apparatus (SCBAs) are required in areas where Class I or Corrosive toxic gases are present. The SCBAs should be located near the areas where these materials are present, but in locations that provide safety for those expected to don the apparatus. (MVCC 24.235). *Show the location of the 2 SCBAs on the plans.* Plan page number: _____. (For office use only: Are these locations out of the range of immediate affect of a release? _____.)

θ Toxic gases in this control area which are incompatible with other hazardous materials (which, when mixed, chemically react to emit heat, pressure, degrade materials of construction, etc) must be separated either by 1-hour fire resistive construction or by gas cabinets. (MVCC 24.240). *List any incompatible toxic gases and describe how they will be separated from one another.* Plan page number: _____.

θ Toxic gas cylinders shall be tested for leaks both during cylinder delivery and departure. (MVCC 24.245). *Describe the leak test procedure in the plans.* Plan page number: _____.

θ An on-site emergency response team shall be designated to handle toxic gas releases. (MVCC 24.257). *List the members of the emergency response team and their positions in the company in the plans.* Plan page number: _____.

θ *Indicate the distances between the storage area and the nearest buildings, property lines, streets, building openings, and any other exposures.* Plan page number: _____. If these distances equal or exceeds 75', SKIP THE REST OF THIS ITEM.

a) The distance between the storage area and exposure shall be shielded by a two-hour fire protective structure which interrupts the line of sight to the exposure. (MVCC 24.905). *Show the location of the structure, specify its dimensions, and verify that it has a two-hour rating.* Plan page number: _____ .

b) The protective structure shall be at least 5' away from any exposure. (MVCC 24.905). *Show that the distances between the protective structure and the nearest buildings, property lines, streets, and building openings are at least* 5'. Plan page number: _____ .

c) Building openings shall not be above the height of the protective structure or less than 50' from the storage area. (MVCC 24.910). *Show these heights and distances on the plans.* Plan page number: _____ .

θ No exterior storage area shall be within 75' of any air intake. (MVCC 24.915). *Show that the distances between the storage area and air intakes is not less than* 75'. Plan page number: _____ .

For CYLINDERS only:

θ a) Cylinders shall be stored under a canopy constructed of noncombustible materials. (MVCC 24.920). *Show the canopy location.* Plan page number: _____ . *Attach manufacturer's cut sheets on the canopy confirming its noncombustible construction.*

θ b) Canopies shall be provided with an automatic fire sprinkler system. (MVCC 24.920). *Show the fire protection system.* Plan page number: _____ .

θ c) If all cylinders are not stored in individual gas cabinets or exhausted enclosures, a means to handle a leaking cylinder shall be provided within or adjacent to the storage area. This shall be accomplished by: 1) an exhausted "leaker" cabinet; or 2) approved encapsulating equipment. (MVCC 24.930). *Indicate which option will be used.* Plan page number:_____ . *Attach manufacturer's cut sheets of the "leaker" cabinet or encapsulating equipment.*

d) If gas cabinets, "leaker" cabinets, or exhausted enclosures are used:

θ 1) *Provide manufacturer's calculations for the maximum flow rate from each cylinder orifice (including the reduced flow orifice, if applicable).* Plan page number: _____ .

θ 2) A treatment system is required which shall be designed to reduce the maximum discharge concentration of the gases at the point of discharge to the atmosphere to 1/2 IDLH, based on the maximum flow rate specified by the manufacturer (including the reduced-flow orifice, if applicable), or, if flow rates are not available, based on either: 1) a 5-minute release for a non-liquefied gas or 2) a 30-minute release for a liquefied gas (MVCC 24.930). *Attach calculations using the maximum cylinder flow rates and , treatment system flow rate (if dilution is used for treatment), to show that the final gas concentrations at the stack will be less than 1/2 IDLH.* Plan page number: _____ .

θ 3) If a treatment system other than dilution is used to meet the 1/2 IDLH calculation (scrubber, burn box, etc.), *attach calculations which describe the treatment system's efficiency %, based on the total amount of exhaust treated, packing material, airflow rate, etc.* Plan page number:_____ . *Attach manufacturer's cut sheets on the new or existing treatment system.*

θ 4) A continuous exhaust flow detection system which will alarm when the ventilation flow rate drops below the lowest rate needed to meet the 1/2 IDLH concentrations at the stack is required. The detection system shall initiate a local audible and visual alarm which provides warning both inside and outside of the interior storage/use area. (1997 CMC). *Show the location of the exhaust flow detection system (including locations of <u>all dampers</u> if applicable).* Plan page number: _____ . *Attach manufacturer's cut sheets on the flow sensor and alarm.*

For STATIONARY TANKS[2] only:

θ a) Pressure relief devices and filling/dispensing connections shall be provided with a means of local exhaust which is directed to a treatment system. (MVCC 24.925). *Indicate the pressure relief device and filling/dispensing openings and show their connection to the exhaust system.* Plan page number: _____.

θ b) *Provide manufacturer's calculations for the maximum flow rate from the pressure relief valve and each valve fitting.* Plan page number:_____ .

θ c) A treatment system shall be designed to reduce the maximum discharge concentration of the gases at the point of discharge to the atmosphere to 1/2 IDLH, based on the maximum flow rate specified by the manufacturer (MVCC 24.930). *Attach calculations using the maximum gas flow rates (through the pressure relief device and filling/dispensing openings) and treatment system flow rate (if dilution is used for treatment), to show that the final gas concentrations at the stack will be less than 1/2 IDLH.* Plan page number: _____.

θ d) If a treatment system other than dilution is used to meet the 1/2 IDLH calculation (scrubber, bum box, etc.), *attach calculations which describe the treatment system's efficiency (%), based on the total amount of exhaust treated, packing material, air flow rate, etc.* Plan page number: _____. Attach *manufacturer's cut sheets on the new or existing treatment system.*

θ e) A continuous exhaust flow detection system which will alarm when the ventilation flow rate drops below the lowest rate needed to meet the 1/2 IDLH concentrations at the stack is required. The detection system shall initiate a local audible and visual alarm which provides warning both inside and outside of the interior storage/use area. (1997 CMC).*Show the location of the exhaust flow detection system (including locations of <u>all dampers</u> if applicable).* Plan page number: _____ . *Attach manufacturer's cut sheets on the flow sensor and alarm.*

[2] Stationary Tank means any packaging designed primarily for stationary installation not intended for loading, unloading or attachment to a transport vehicle as part of its normal operation in the process of use. It does not include cylinders having less than 1,000 pounds water capacity.

θ f) The tank must be seismically braced (1997 CFC). Provide details of the seismic bracing. Plan page number: _____ .

For PORTABLE TANKS[3] only:

θ a) Portable tanks shall be stored under a canopy constructed of noncombustible materials (MVCC 24.920). *Show the canopy and describe the material of construction.* Plan page number: _____

θ b) Canopies shall be provided with an automatic fire sprinkler system (MVCC 24.920). *Show the fire protection system.* Plan page number: _____ .

θ c) All valves and fittings on the tank shall be provided with a means of local exhaust which is directed to a treatment system (MVCC 24.935). *Indicate the valve and fitting openings and show their connection to the exhaust system.* Plan page number: _____ .

θ d) *Provide manufacturer's calculations for the maximum flow rate from all tank valves and fittings (including the reduced-flow orifice, if applicable).* Plan page number: _____ .

θ e) Treatment systems are required which shall be designed to reduce the maximum discharge concentration of the gases at the point of discharge to the atmosphere to 1/2 IDLH, based on the maximum flow rate specified by the manufacturer (including the reduced-flow orifice, if applicable), or, if flow rates are not available, based on either: 1) a 40-minute release for a non-liquefied gas or 2) a 240 minute release for a liquefied gas (MVCC 24.930). *Attach calculations using the maximum gas flow rates (through the valves and fittings) and treatment system flow rate (if dilution is used for treatment), to show that the final gas concentrations at the stack will be less than 1/2 IDLH.* Plan page number: _____

θ f) If a treatment system other than dilution is used to meet the 1/2 IDLH calculation (scrubber, bum box, etc.), *attach calculations which describe the treatment system's efficiency %, based on the total amount of exhaust treated, packing material, air flow rate, etc.* Plan page number:_____ . Attach *manufacturer's cut sheets on the new or existing treatment system.*

θ g) A continuous flow detection system in the exhaust ducting which will initiate an audible and visual alarm when the ventilation flow rate drops below the lowest rate needed to meet the 1/2 IDLH concentrations at the stack is required. (1997 CMC). *Show the location of all exhaust ducting* (including locations *of <u>all dampers</u> if applicable).* Plan page number: _____ . Attach *manufacturer's cut sheets on the flow sensor and alarm.*
Show the electrical schematics of how the local exhaust alarm will be transferred to a constantly staffed remote location. Plan page number: _____.

[3] Portable Tanks means any packaging over 60 U.S. gallons capacity and designed primarily to be loaded into or on or temporarily attached to a transport vehicle or ship, and equipped with skids, mounting or accessories to facilitate handling of the tank by mechanical means. It does not include any cylinder having more than 1,000 pounds water capacity, cargo tank, tank car tank, or trailers carrying cylinders over 1,000 pounds capacity.